

ATTACHMENT A

Claims 1 – 9: (Cancelled)

10. (New) A monocyclopentadienyl complex comprising a structural feature of a formula Cp-(Z-A)_mM^A (I), where:

Cp is a cyclopentadienyl system;

A is an uncharged donor group comprising at least one atom selected from group 15 and/or 16 of the Periodic Table of Elements, and is an unsubstantiated, substituted or fused, heteroaromatic ring system or a carbene;

Z is a bridge between A and Cp comprising at least one atom of group 14 of the Periodic Table of Elements, and at least one atom selected from group 15 and 16 of the Periodic Table of Elements;

M^A is chromium, molybdenum or tungsten; and

m is 1, 2 or 3.

11. (New) The monocyclopentadienyl complex as claimed in claim 10, wherein the monocyclopentadienyl complex comprises formula Cp-(Z-A)_mM^AX^{1A}_n (V), where:

Cp is a cyclopentadienyl system;

A is an uncharged donor comprising at least one atom selected from group 15 and/or 16 of the Periodic Table of Elements, and is an unsubstituted, substituted or fused, heteroaromatic ring system or a carbene;

Z is a bridge between A and Cp comprising at least one atom of group 14 of the Periodic Table of Elements, and at least one atom selected from group 15 and 16 of the Periodic Table of Elements;

M^A is chromium, molybdenum or tungsten;

m is 1, 2 or 3;

X^{1A} are each, independently of one another, fluorine, chlorine, bromine, iodine, hydrogen, a C₁-C₁₀-alkyl, a C₂-C₁₀-alkenyl, a C₆-C₂₀-aryl, an arylalkyl comprising 1-10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, NR^{18A}R^{19A}, OR^{18A}, SR^{18A}, SO₃R^{18A}, OC(O)R^{18A}, CN, SCN, β -diketonate, CO, BF₄⁻, PF₆⁻ or bulky noncoordinating anions; or two X^{1A} radicals optionally can form a substituted or unsubstituted diene ligand, or more than one X^{1A} radical optionally can be joined to one another;

R^{18A}-R^{19A} are each, independently of one another, hydrogen, a C₁-C₂₀-alkyl, a C₂-C₂₀-alkenyl, a C₆-C₂₀-aryl, an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, or SiR^{20A}₃, where R^{18A}-R^{19A} optionally can be substituted by at least one halogen or nitrogen- and oxygen-containing group, or two R^{18A}-R^{19A} radicals optionally can be joined to form a five- or six-membered ring;

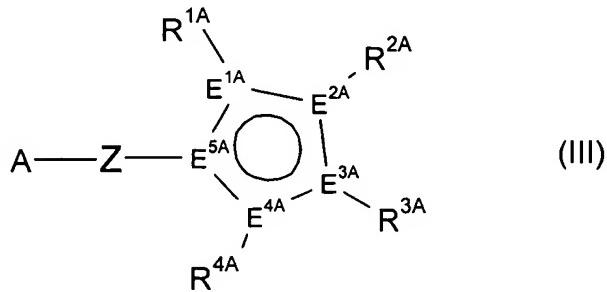
R^{20A} are each, independently of one another, hydrogen, a C₁-C₂₀-alkyl, a C₂-C₂₀-alkenyl, a C₆-C₂₀-aryl, an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, or two R^{20A} radicals optionally can be joined to form a five- or six-membered ring; and

n is 1, 2 or 3.

12. (New) The monocyclopentadienyl complex as claimed in claim 11, wherein X^{1A} form a 1,3-diene ligand.

13. (New) The monocyclopentadienyl complex as claimed in claim 10 comprising formula Cp-Z-A-M^A (II), where:

Cp-Z-A is



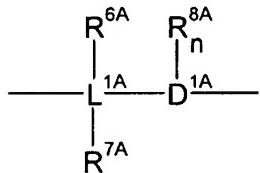
where:

E^{1A} - E^{5A} are each carbon or phosphorus, with the proviso that not more than one E^{1A} to E^{5A} is phosphorus;

R^{1A} - R^{4A} are each, independently of one another, hydrogen, a C₁-C₂₂-alkyl, a C₂-C₂₂-alkenyl, a C₆-C₂₂-aryl, an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, NR^{5A}₂, N(SiR^{5A}₃)₂, OR^{5A}, OSiR^{5A}₃, SiR^{5A}₃, or BR^{5A}₂, where R^{1A}-R^{4A} optionally can be substituted by at least one halogen and two vicinal R^{1A}-R^{4A} optionally can be joined to form a five-, six- or seven-membered ring, or two vicinal R^{1A}-R^{4A} optionally can be joined to form a five-, six- or seven-membered heterocycle comprising at least one atom from the group consisting of N, P, O and S;

R^{5A} are each, independently of one another, hydrogen, a C₁-C₂₀-alkyl, a C₂-C₂₀-alkenyl, a C₆-C₂₀-aryl, an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, or two geminal R^{5A} optionally can be joined to form a five- or six-membered ring;

Z is a divalent bridge between A and Cp and is



where

L^{1A} is carbon, silicon or germanium;

D^{1A} is an atom of group 15 or 16 of the Periodic Table of Elements;

n is 0 when D^{1A} is an atom of group 16, and is 1 when D^{1A} is an atom of group 15;

R^{6A}-R^{8A} are each, independently of one another, hydrogen, a C₁-C₂₀-alkyl, a C₂-C₂₀-alkenyl, a C₆-C₂₀-aryl, an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, or SiR^{9A}₃, where R^{6A}-R^{8A}

optionally can be substituted by at least one halogen and two geminal or vicinal R^{6A} - R^{8A} optionally can be joined to form a five- or six-membered ring;

R^{9A} are each, independently of one another, hydrogen, a C₁-C₂₀-alkyl, a C₂-C₂₀-alkenyl, a C₆-C₂₀-aryl or an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, a C₁-C₁₀-alkoxy or a C₆-C₁₀-aryloxy, or two R^{9A} optionally can be joined to form a five- or six-membered ring; and

A is an uncharged donor group comprising at least one atom of group 15 and/or 16 of the Periodic Table of Elements and is an unsubstituted, substituted or fused, heteroaromatic ring system or a carbene; and

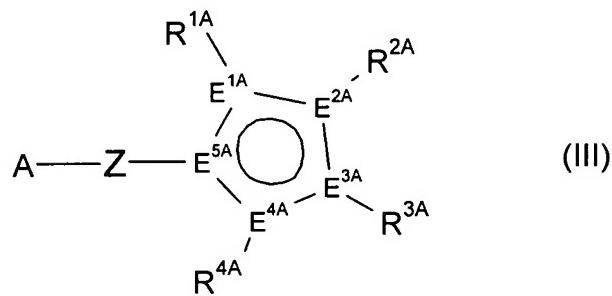
M^A is chromium, molybdenum, or tungsten.

14. (New) The monocyclopentadienyl complex as claimed in claim 13, wherein L^{1A} is silicon.

15. (New) The monocyclopentadienyl complex as claimed in claim 13, wherein D^{1A} is oxygen, sulfur, nitrogen, or phosphorus.

16. (New) The monocyclopentadienyl complex as claimed in claim 11 comprising formula Cp-Z-A-M^A (II), where:

Cp-Z-A is



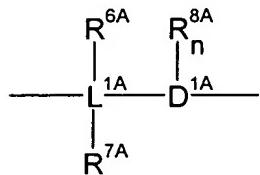
where:

E^{1A} - E^{5A} are each carbon or phosphorus, with the proviso that not more than one E^{1A} to E^{5A} is phosphorus;

R^{1A} - R^{4A} are each, independently of one another, hydrogen, a C₁-C₂₂-alkyl, a C₂-C₂₂-alkenyl, a C₆-C₂₂-aryl, an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, NR^{5A}₂, N(SiR^{5A}₃)₂, OR^{6A}, OSiR^{5A}₃, SiR^{5A}₃, or BR^{5A}₂, where R^{1A}-R^{4A} optionally can be substituted by at least one halogen and two vicinal R^{1A}-R^{4A} optionally can be joined to form a five-, six- or seven-membered ring, or two vicinal R^{1A}-R^{4A} optionally can be joined to form a five-, six- or seven-membered heterocycle comprising at least one atom from the group consisting of N, P, O and S;

R^{5A} are each, independently of one another, hydrogen, a C₁-C₂₀-alkyl, a C₂-C₂₀-alkenyl, a C₆-C₂₀-aryl, an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, or two geminal R^{5A} optionally can be joined to form a five- or six-membered ring;

Z is a divalent bridge between A and Cp and is



where

L^{1A} is carbon, silicon or germanium;

D^{1A} is an atom of group 15 or 16 of the Periodic Table of Elements;

n is 0 when D^{1A} is an atom of group 16, and is 1 when D^{1A} is an atom of group 15;

R^{6A}-R^{8A} are each, independently of one another, hydrogen, a C₁-C₂₀-alkyl, a C₂-C₂₀-alkenyl, a C₆-C₂₀-aryl, an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, or SiR^{9A}₃, where R^{6A}-R^{8A} optionally can be substituted by at least one halogen and two geminal or vicinal R^{6A}-R^{8A} optionally can be joined to form a five- or six-membered ring;

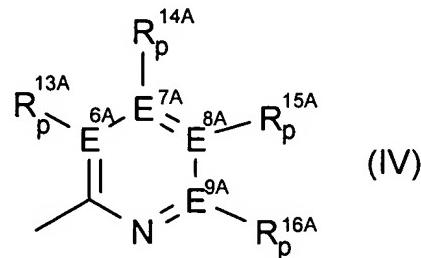
R^{9A} are each, independently of one another, hydrogen, a C₁-C₂₀-alkyl, a C₂-C₂₀-alkenyl, a C₆-C₂₀-aryl or an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part

and 6-20 carbon atoms in the aryl part, a C₁-C₁₀-alkoxy or a C₆-C₁₀-aryloxy, or two R^{9A} optionally can be joined to form a five- or six-membered ring; and

A is an uncharged donor group comprising at least one atom of group 15 and/or 16 of the Periodic Table of Elements and is an unsubstituted, substituted or fused, heteroaromatic ring system or a carbene; and

M^A is chromium, molybdenum, or tungsten.

17. (New) The monocyclopentadienyl complex as claimed in claim 10, wherein A comprises formula (IV):



where

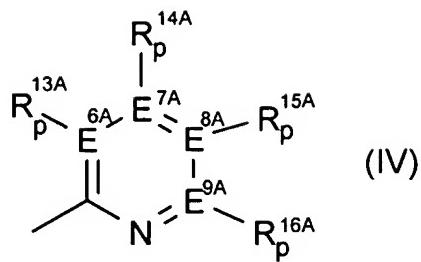
E^{6A}-E^{9A} are each, independently of one another, carbon, or nitrogen;

R^{13A}-R^{16A} are each, independently of one another, hydrogen, a C₁-C₂₀-alkyl, a C₂-C₂₀-alkenyl, a C₆-C₂₀-aryl, an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, or SiR^{17A}₃, where R^{13A}-R^{16A} optionally can be substituted by at least one halogen or nitrogen, or two vicinal R^{13A}-R^{16A} or R^{13A} and Z optionally can be joined to form a five- or six-membered ring;

R^{17A} are each, independently of one another, hydrogen, a C₁-C₂₀-alkyl, a C₂-C₂₀-alkenyl, a C₆-C₂₀-aryl or an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, or two R^{17A} optionally can be joined to form a five- or six-membered ring; and

p is 0 when E^{6A}-E^{9A} is nitrogen, and is 1 when E^{6A}-E^{9A} is carbon.

18. (New) The monocyclopentadienyl complex as claimed in claim 11, wherein A comprises formula (IV):



where

E^{6A} - E^{9A} are each, independently of one another, carbon, or nitrogen;

R^{13A} - R^{16A} are each, independently of one another, hydrogen, a C₁-C₂₀-alkyl, a C₂-C₂₀-alkenyl, a C₆-C₂₀-aryl, an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, or SiR^{17A}₃, where R^{13A}-R^{16A} optionally can be substituted by at least one halogen or nitrogen, or two vicinal R^{13A}-R^{16A} or R^{13A} and Z optionally can be joined to form a five- or six-membered ring;

R^{17A} are each, independently of one another, hydrogen, a C₁-C₂₀-alkyl, a C₂-C₂₀-alkenyl, a C₆-C₂₀-aryl or an arylalkyl comprising from 1 to 10 carbon atoms in the alkyl part and 6-20 carbon atoms in the aryl part, or two R^{17A} optionally can be joined to form a five- or six-membered ring; and

p is 0 when E^{6A}-E^{9A} is nitrogen, and is 1 when E^{6A}-E^{9A} is carbon.

19. (New) The monocyclopentadienyl complex as claimed in claim 13, wherein -Z- is -SiR^{6A}R^{7A}-O-.

20. (New) The monocyclopentadienyl complex as claimed in claim 16, wherein -Z- is -SiR^{6A}R^{7A}-O-.

21. (New) A catalyst system for olefin polymerization comprising:

- A) at least one monocyclopentadienyl complex as claimed in claim 10;
- B) optionally, an organic or inorganic support;
- C) optionally, one or more activating compounds;
- D) optionally, further catalysts suitable for olefin polymerization; and

- E) optionally, one or more metal compounds comprising a metal of group 1, 2 or 13 of the Periodic Table of Elements.

22. (New) A catalyst system for olefin polymerization comprising:

- A) at least one monocyclopentadienyl complex as claimed in claim 11;
- B) optionally, an organic or inorganic support;
- C) optionally, one or more activating compounds;
- D) optionally, further catalysts suitable for olefin polymerization; and
- E) optionally, one or more metal compounds comprising a metal of group 1, 2 or 13 of the Periodic Table of Elements.

23. (New) A prepolymerized catalyst system comprising the catalyst system as claimed in claim 21 and at least one linear C₂-C₁₀-1-alkene polymerized onto the catalyst system in a mass ratio of from 1:0.1 to 1:1000.

24. (New) A prepolymerized catalyst system comprising the catalyst system as claimed in claim 22 and at least one linear C₂-C₁₀-1-alkene polymerized onto the catalyst system in a mass ratio of from 1:0.1 to 1:1000.

25. (New) A process for preparing polyolefins by polymerization or copolymerization olefins in presence of the catalyst system as claimed in claim 21.

26. (New) A process for preparing polyolefins by polymerization or copolymerization olefins in presence of the catalyst system as claimed in claim 22.